



## DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITE DE COOPERATION EN MATIÈRE DE BREVETS (PCT)

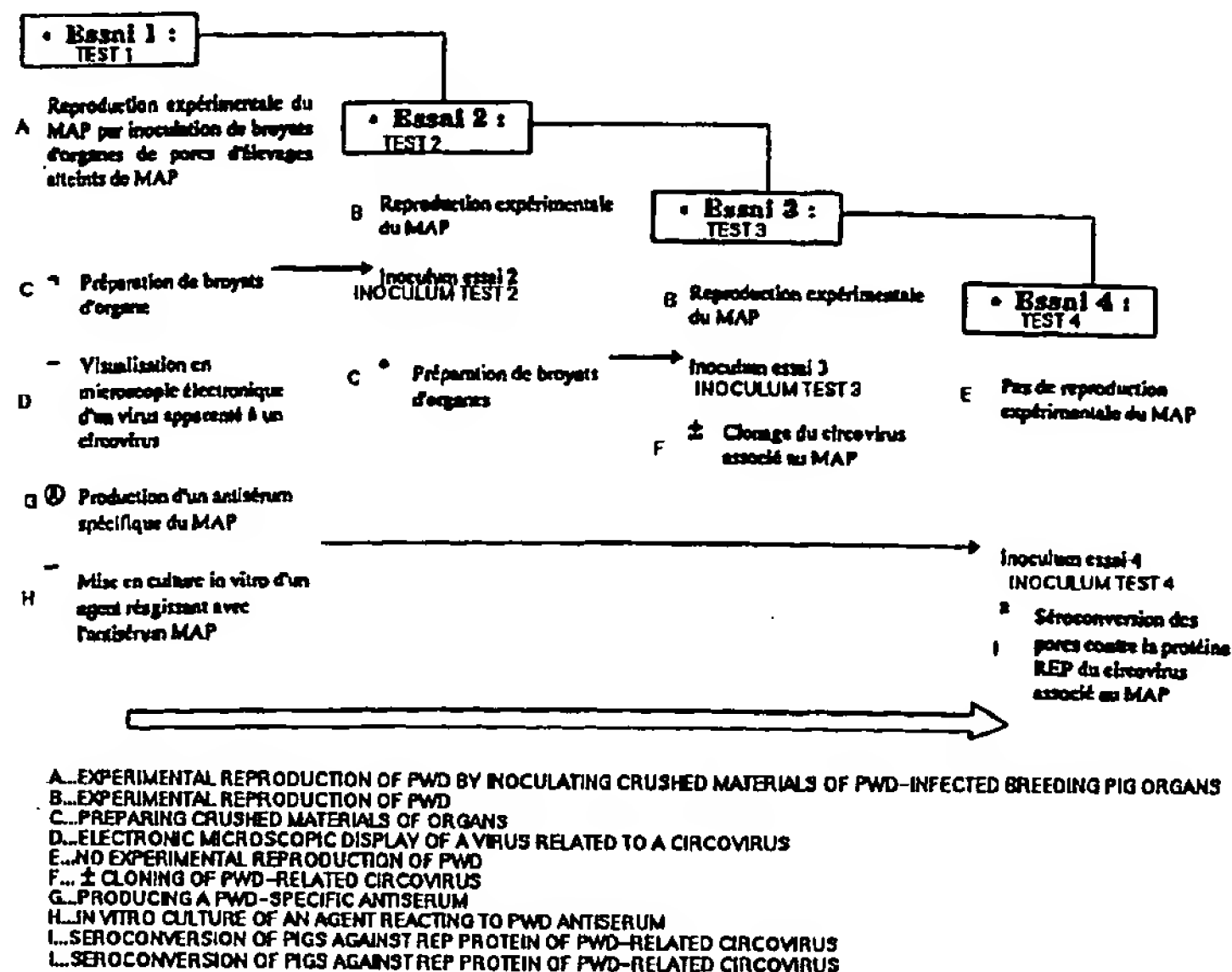
<b>(51) Classification internationale des brevets <sup>6</sup> :</b> <b>C12N 15/34, 15/86, C07K 14/01, C12N 7/04, 5/10, 7/00, A01K 67/027, C12Q 1/68, C07K 16/08, G01N 33/569</b>	<b>A3</b>	<b>(11) Numéro de publication internationale: WO 99/29871</b> <b>(43) Date de publication internationale: 17 juin 1999 (17.06.99)</b>
<b>(21) Numéro de la demande internationale:</b> PCT/FR98/02634 <b>(22) Date de dépôt international:</b> 4 décembre 1998 (04.12.98) <b>(30) Données relatives à la priorité:</b> 97/15396 5 décembre 1997 (05.12.97) FR <b>(71) Déposant (pour tous les Etats désignés sauf US):</b> CENTRE NATIONAL D'ETUDES VETERINAIRES ET ALIMEN- TAIRES [FR/FR]; 23, avenue du Général de Gaulle, F-94700 Maisons-Alfort (FR). <b>(72) Inventeurs; et</b> <b>(75) Inventeurs/Déposants (US seulement):</b> JESTIN, André [FR/FR]; 14, rue Jacques Cartier, F-22000 Saint-Brieuc (FR). ALBINA, Emmanuel [FR/FR]; 11, rue du Roussillon, F-22950 Trégueux (FR). LE CANN, Pierre [FR/FR]; La Noë de Craffault, F-22960 Plédran (FR). BLANCHARD, Philippe [FR/FR]; 26, rue du 8 Mai 1945, F-22190 Plérin (FR). HUTET, Evelyne [FR/FR]; 20, rue Vice Amiral Kersaint, Saint Laurent, F-22190 Plérin (FR). ARNAULD, Claire [FR/FR]; 34, boulevard Clémenceau, F-22000 Saint-Brieuc (FR). TRUONG, Catherine [FR/FR]; 24, rue de Rohan, F-22000 Saint-Brieuc (FR). MAHE, Dominique [FR/FR]; 3, rue des Fontaines, F-22150 Saint-Carreuc	<b>(FR). CARIOLET, Roland [FR/FR]; 30, rue de l'Aubépine,</b> <b>F-22440 Ploufragan (FR). MADEC, François [FR/FR];</b> <b>Rue du Valais, F-22000 Saint-Brieuc (FR).</b> <b>(74) Mandataires:</b> MARTIN, Jean-Jacques etc.; Cabinet Regim- beau, 26, avenue Kléber, F-75116 Paris (FR). <b>(81) Etats désignés:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, brevet ARIPO (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), brevet eurasien (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), brevet européen (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), brevet OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). <b>Publiée</b> <i>Avec rapport de recherche internationale.</i> <b>(88) Date de publication du rapport de recherche internationale:</b> 19 août 1999 (19.08.99)	

(54) Title: CIRCOVIRUS SEQUENCES RELATED TO PIGLET WEIGHT LOSS DISEASE (PWD)

(54) Titre: SEQUENCES DE CIRCOVIRUS ASSOCIE A LA MALADIE DE L'AMAIGRISSEMENT DU PORCELET (MAP)

## (57) Abstract

The invention concerns the genome sequence and the nucleotide sequences coding for the PWD circovirus polypeptides, such as said circovirus structural and non-structural polypeptides, and vectors including said sequences and cells or animals transformed by said vectors. The invention also concerns methods for detecting said nucleic acids or polypeptides and kits for diagnosing infection by a PWD circovirus. The invention further concerns a method for selecting compounds capable modulating the viral infection. Finally the invention concerns pharmaceutical, in particular vaccine, compositions for preventing and/or treating viral infections caused by PWD circovirus and the use of said vector for preventing and/or treating diseases by gene therapy.



# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/FR 98/02634

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 6 C12N15/34 C12N15/86 C07K14/01 C12N7/04 C12N5/10 C12N7/00 A01K67/027 C12Q1/68 C07K16/08 G01N33/569				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 6 C07K				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	MEEHAN B M ET AL: "SEQUENCE OF PORCINE CIRCOVIRUS DNA: AFFINITIES WITH PLANT CIRCOVIRUSES" JOURNAL OF GENERAL VIROLOGY., vol. 78, no. 1, January 1997, pages 221-227, XP002068398 READING GB cited in the application see the whole document --- -/--	1-4,6, 8-11,13, 15,16, 19, 21-24, 36,38		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input type="checkbox"/> Patent family members are listed in annex.				
<b>* Special categories of cited documents :</b> <table border="0"> <tr> <td style="vertical-align: top;">           "A" document defining the general state of the art which is not considered to be of particular relevance            "E" earlier document but published on or after the international filing date            "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)            "O" document referring to an oral disclosure, use, exhibition or other means            "P" document published prior to the international filing date but later than the priority date claimed         </td> <td style="vertical-align: top;">           "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention            "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone            "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.            "&amp;" document member of the same patent family         </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family			
Date of the actual completion of the international search  <b>3 June 1999</b>		Date of mailing of the international search report  <b>16/06/1999</b>		
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  <b>Chambonnet, F</b>		

# INTERNATIONAL SEARCH REPORT

Inter national Application No  
PCT/FR 98/02634

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MANKERTZ, A. ET AL.: "Mapping and characterization of the origin of DNA replication of porcine circovirus" JOURNAL OF VIROLOGY., vol. 71, no. 3, March 1997, pages 2562-2566, XP002078782 ICAN SOCIETY FOR MICROBIOLOGY US cited in the application see the whole document	1-4, 6, 11, 13, 15, 16, 19, 21-24, 36, 38
P, X	--- HAMEL, A.L. ET AL.: "Nucleotide sequence of Porcine Circovirus associated with postweaning multisystemic wasting syndrome in pigs" JOURNAL OF VIROLOGY, vol. 72, no. 6, June 1998, pages 5262-5267, XP002078783 see the whole document	1
P, X	--- MEEHAN B M ET AL: "Characterization of novel circovirus DNAs associated with wasting syndromes in pigs" JOURNAL OF GENERAL VIROLOGY, vol. 79, no. 9, September 1998, pages 2171-2179, XP002090386 see the whole document	1
P, X	--- MOROZOV I ET AL: "Detection of a novel strain of porcine circovirus in pigs with postweaning multisystemic wasting syndrome" JOURNAL OF CLINICAL MICROBIOLOGY, vol. 36, no. 9, September 1998, pages 2535-2541, XP002090921 see the whole document	1
P, A	--- ALLAN G M ET AL: "ISOLATION OF PORCINE CIRCOVIRUS-LIKE VIRUSES FROM PIGS WITH A WASTING DISEASE IN THE USA AND EUROPE" JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, vol. 10, January 1998, pages 3-10, XP002068503 see the whole document	1, 32
P, A	--- ELLIS J ET AL: "ISOLATION OF CIRCOVIRUS FROM LESIONS OF PIGS WITH POSTWEANING MULTISYSTEMIC WASTING SYNDROME" CANADIAN VETERINARY JOURNAL - REVUE VETERINAIRE CANADIENNE, vol. 39, January 1998, pages 44-51, XP002068502 see page 50, column 1, paragraph 3 --- -/--	1, 32



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(21) Numéro de la demande internationale: PCT/FR98/02634

(22) Date de dépôt international: 4 décembre 1998 (04.12.98)

(30) Données relatives à la priorité:  
97/15396 5 décembre 1997 (05.12.97) FR(71) Déposant (pour tous les Etats désignés sauf US): CENTRE NATIONAL D'ETUDES VETERINAIRES ET ALIMEN-  
TAIRES [FR/FR]; 23, avenue du Général de Gaulle,  
F-94700 Maisons-Alfort (FR).

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[FR/FR]; 14, rue Jacques Cartier, F-22000 Saint-Brieuc  
(FR). ALBINA, Emmanuel [FR/FR]; 11, rue du Roussillon,  
F-22950 Trégueux (FR). LE CANN, Pierre [FR/FR]; La  
Noë de Craffault, F-22960 Plédran (FR). BLANCHARD,  
Philippe [FR/FR]; 26, rue du 8 Mai 1945, F-22190 Plérin  
(FR). HUTET, Evelyne [FR/FR]; 20, rue Vice Amiral  
Kersaint, Saint Laurent, F-22190 Plérin (FR). ARNAULD,  
Claire [FR/FR]; 34, boulevard Clémenceau, F-22000  
Saint-Brieuc (FR). TRUONG, Catherine [FR/FR]; 24, rue  
de Rohan, F-22000 Saint-Brieuc (FR). MAHE, Dominique  
[FR/FR]; 3, rue des Fontaines, F-22150 Saint-Carreuc(FR). CARIOLET, Roland [FR/FR]; 30, rue de l'Aubépine,  
F-22440 Ploufragan (FR). MADEC, François [FR/FR];  
Rue du Valais, F-22000 Saint-Brieuc (FR).(74) Mandataires: MARTIN, Jean-Jacques etc.; Cabinet Regim-  
beau, 26, avenue Kléber, F-75116 Paris (FR).(81) Etats désignés: AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE,  
GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ,  
LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,  
MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, brevet  
ARIPO (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), brevet  
eurasien (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), brevet  
européen (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR,  
IE, IT, LU, MC, NL, PT, SE), brevet OAPI (BF, BJ, CF,  
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Publiée

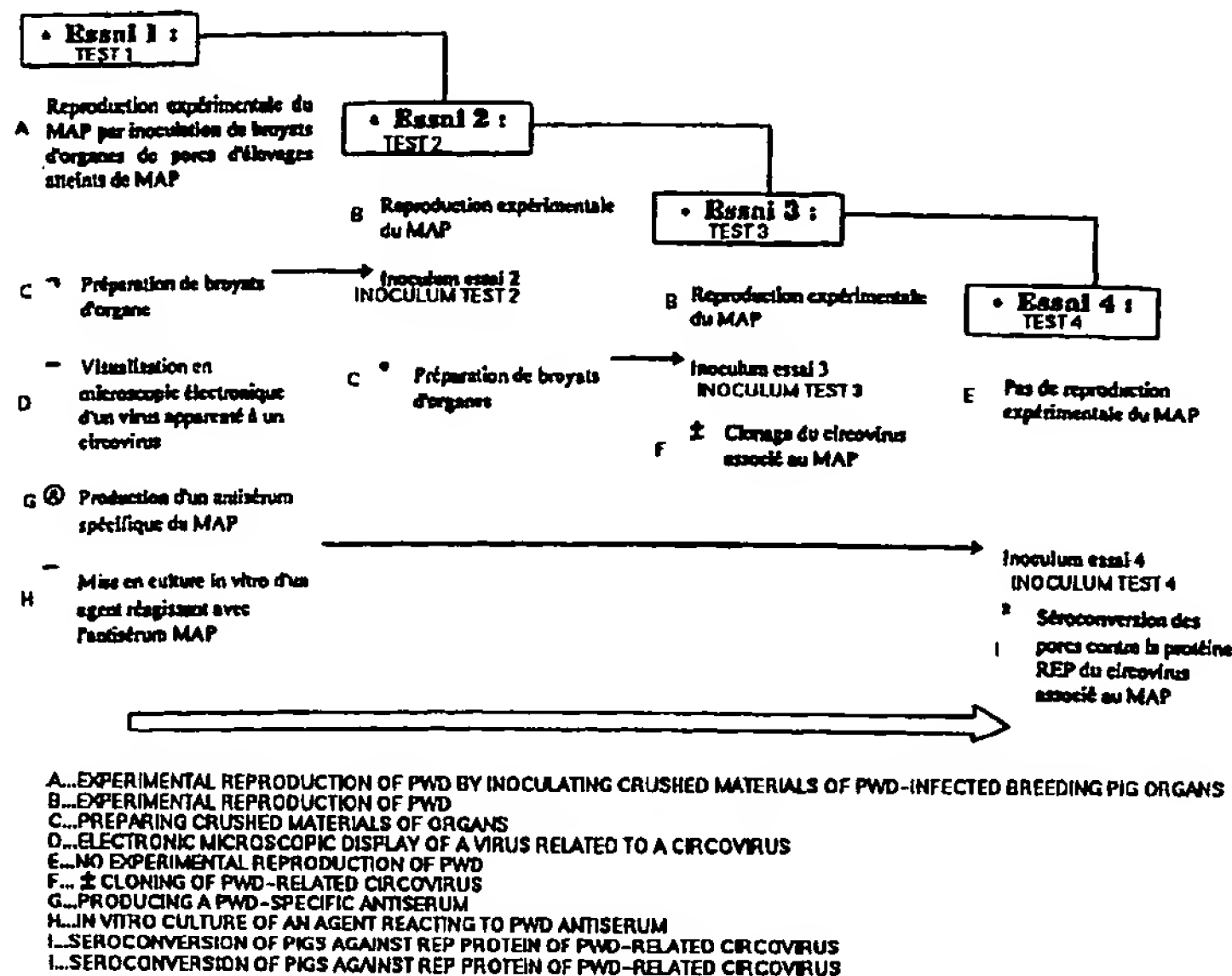
Sans rapport de recherche internationale, sera republiée dès  
réception de ce rapport.

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# INTERNATIONAL SEARCH REPORT

In tional Application No  
PCT/FR 98/02107

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CLARK E. G.: "Post-weaning multisystemic wasting syndrome" PROCEEDINGS OF THE AMERICAN ASSOCIATION OF SWINE PRACTITIONERS. ANNUAL MEETING, 1 March 1997, pages 499-501, XP002068397 cited in the application see page 500, right-hand column, line 18-39.	1-7, 28, 29
P, X	--- MEEHAN B.M. ET AL.: "Characterization of novel circovirus DNAs associated with wasting syndromes in pigs" JOURNAL OF GENERAL VIROLOGY, vol. 79, no. 9, September 1998, pages 2171-2179, XP002090386 see the whole document	1-7, 11-17, 19, 27-29
P, X	--- HAMEL A.L. ET AL.: "Nucleotide sequence of Porcine Circovirus associated with postweaning multisystemic wasting syndrome in pigs" JOURNAL OF VIROLOGY, vol. 72, no. 6, June 1998, pages 5262-5267, XP002078783 see the whole document	1-14, 27
P, X	--- MOROZOV I. ET AL.: "Detection of a novel strain of porcine circovirus in pigs with postweaning multisystemic wasting syndrome" JOURNAL OF CLINICAL MICROBIOLOGY, vol. 36, no. 9, September 1998, pages 2535-2541, XP002090921 see the whole document	1-7, 11-14, 27, 29
A	--- MEEHAN B.M. ET AL.: "Sequence of porcine circovirus DNA: affinities with plant circoviruses" JOURNAL OF GENERAL VIROLOGY, vol. 78, no. 1, January 1997, pages 221-227, XP002068398 cited in the application see page 224; figure 3	11-14
A	--- MANKERTZ A. ET AL.: "Mapping and characterization of the origin of DNA replication of porcine circovirus" JOURNAL OF VIROLOGY, vol. 71, no. 3, March 1997, pages 2562-2566, XP002078782 cited in the application see page 2563, left-hand column; figure 1 see page 2566, left-hand column, paragraph 2	11-14

### Information on patent family members

PCT/FR 98/02107

Form PCT/ISA/210 (patent family annex) (July 1992)